



2014 BISMARCK STATE COLLEGE

national energy center of excellence

Department of Energy

Quadrennial Energy Review

Bakken Workforce Development Panel

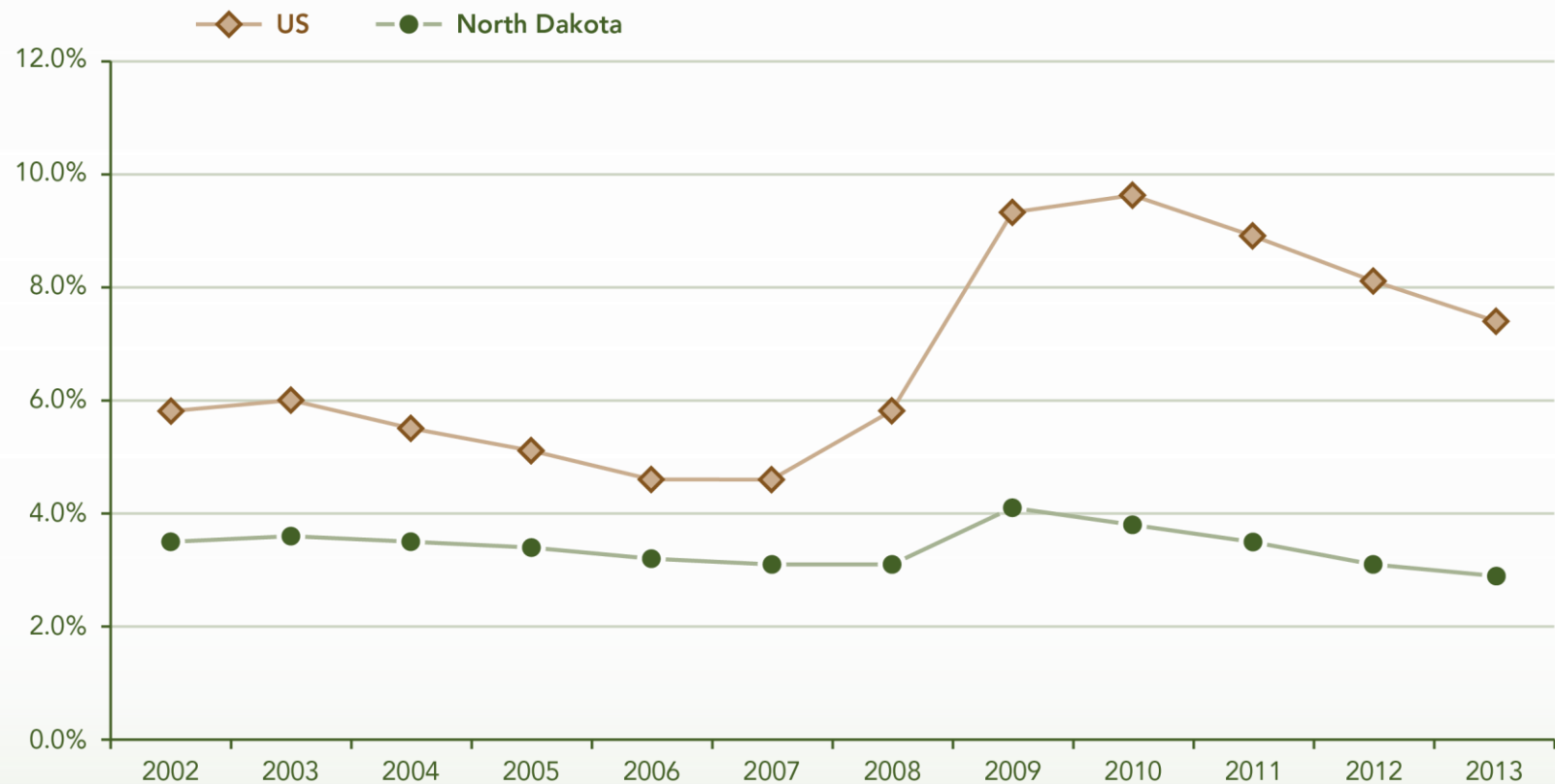
August 8, 2014

DAVE CLARK – INTERIM PRESIDENT



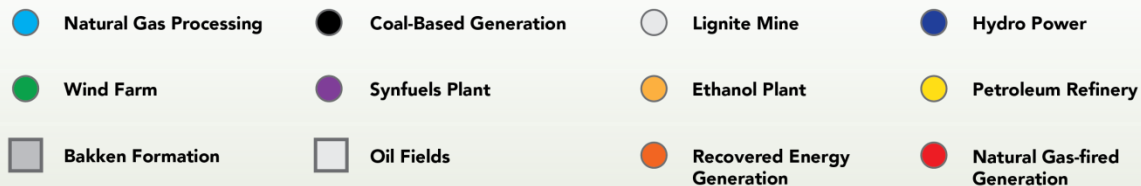
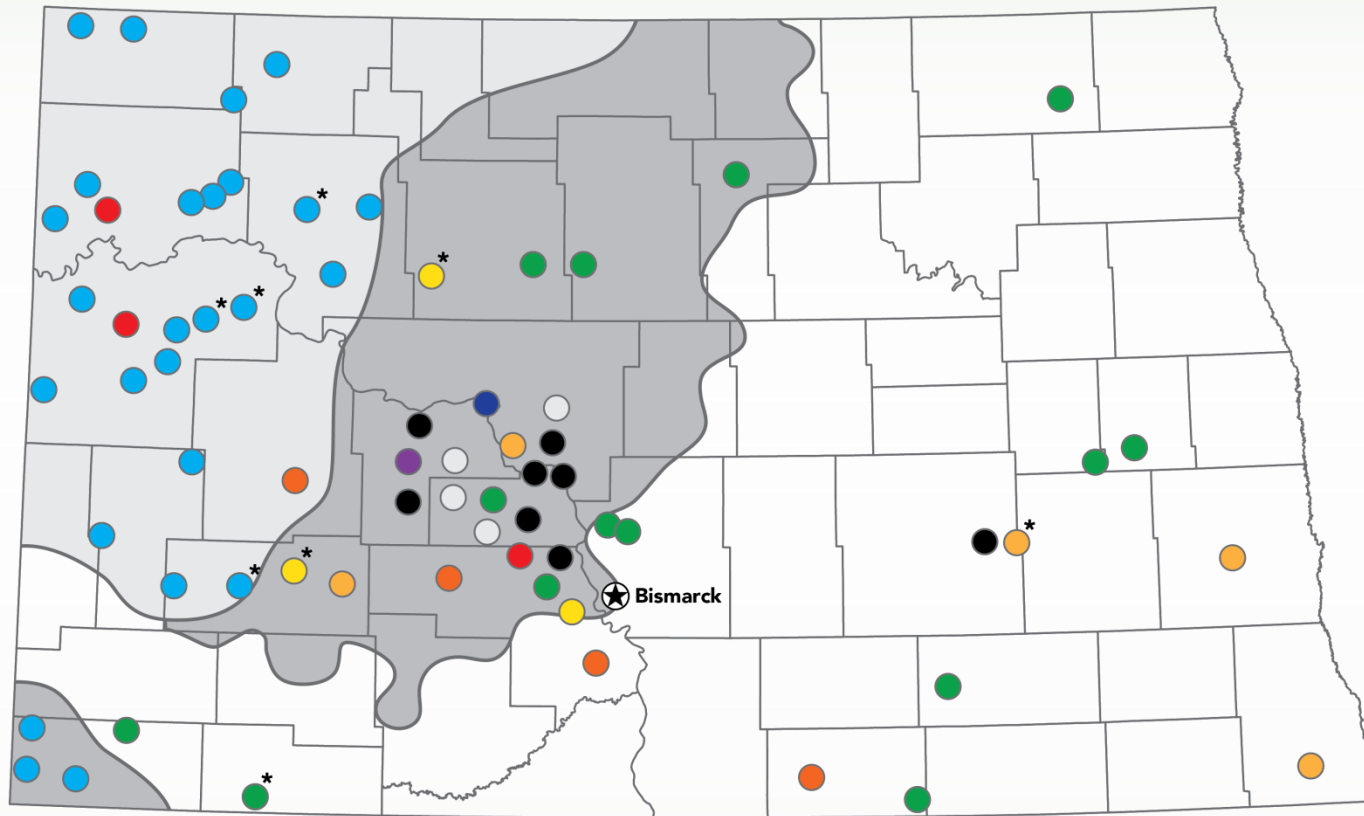
NORTH DAKOTA UNEMPLOYMENT

UNEMPLOYMENT RATE ANNUAL AVERAGE DATA



source: https://www.ndworkforceintelligence.com/admin/gsipub/htmlarea/uploads/lmi_apnorthdakota.pdf

NORTH DAKOTA ENERGY RESOURCES



* Under Construction

BISMARCK STATE COLLEGE NATIONAL ENERGY CENTER OF EXCELLENCE ON-CAMPUS ENERGY PROGRAMS

- Lineworker (1970)
- Power Plant Technology (1976)
- Process Plant Technology (1982)
- Mechanical Maintenance (2007)
- Instrumentation & Control (2008)
- Renewable Generation Technology (2010)
- Petroleum Engineering Technology (2012)

BISMARCK STATE COLLEGE NATIONAL ENERGY CENTER OF EXCELLENCE

ONLINE ENERGY PROGRAMS

- Power Plant Technology (2000)
- Process Plant Technology (2000)
- Instrumentation & Control (2008)
- Renewable Generation Technology (2010)
- Electric Power Technology (2001)
- Electrical Transmission Systems Technology (2003)
- Nuclear Power Technology (2004)
- Bachelor of Applied Science: Energy (2008)
- Petroleum Production Technology (2011)
- Smart Grid (2011)
- Water & Wastewater Technician (2012)

programs also offered on-campus shown in brown

BISMARCK STATE COLLEGE

OTHER PROGRAMS SUPPORTING BAKKEN WORKFORCE DEMAND

- Allied Health Programs
- Carpentry
- Electronics & Telecommunications
- Engineering & Engineering Technology
- Geographic Information Systems
- Heating, Ventilation, and Air Conditioning
- Welding

INTERACTIVE LEARNING TOOLS

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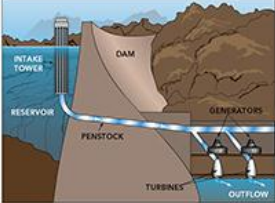
ENERGY STORAGE

roll over each icon to learn about the different types of energy storage
click the notes to hear the narration

Hydro

22
Hydroelectric Dams and
Pumped Storage

By using the potential energy of stored water in a reservoir, hydroelectric storage is currently the largest storage technology for bulk electric power. When the need arises to use this energy source, water is released to flow downhill through a turbine to produce power. Some reservoirs are connected to each other, with one higher than the other. During periods of inexpensive power, water can be pumped from the lower reservoir to the upper reservoir. When the need for this energy source arises, the water is then



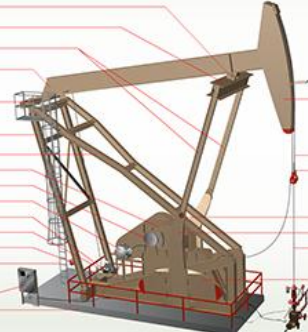
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PUMPING UNIT

START 1.0



CROSS YOKE BEARING
CROSS YOKE
PITMAN ARMS
WALKING BEAM
SAMSON POST
BEARING ASSEMBLY
SAMSON POST
ANGLE BRACE
GEAR REDUCER
BRAKE
PRIME MOVER
CHEMICAL PUMP
BRAKE LEVER
VIBRATION SENSOR
PLATFORM LADDER
CONTROL PANEL
BASE

HORSEHEAD
WIRELINE/BRIDLE
CARRIER BAR
CRANK PIN BEARING
CRANK
POLISHED ROD
COUNTERWEIGHTS
WELLHEAD

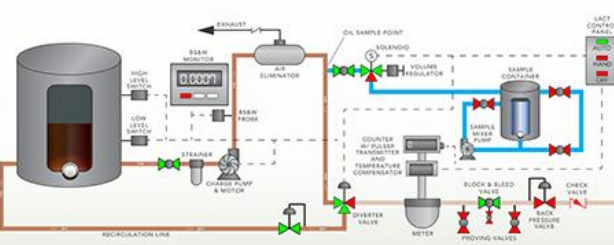
INTRODUCTIONS 1.0
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LEASE AUTOMATIC CUSTODY TRANSFER (LACT) UNIT

Click on each component to view a description. Click on the 'Auto', 'Good Oil', and 'Bad Oil' buttons on the left to view the different oil flows and a brief description of each process. Click 'LACT Description' button for a detailed description.



GOOD OIL 1.0
BAD OIL 1.0
AUTO 1.0
LACT DESCRIPTION 1.0
VERSION 1.0

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CLASS II SALT WATER DISPOSAL WELL

START 1.0



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REMOTE LABORATORIES

